

Listing of Claims

1. (Currently Amended) An optical detector that electronically aligns to an optical fiber, for receiving an optical signal transmitted via an optical fiber cable, the optical detector comprising:

a photo-detector device comprising an array of photo-sensors, which receives an optical signal output from an end of an optical fiber for location in the path of an optical signal, where the optical signal is transmitted via an optical fiber cable; and

a controller operatively connected to the photo-detector device, to generate a detection signal by processing photo-sensor signals output from one or more photo-sensors in the array that are actuated by said optical signal, while discounting photo-sensors in the array that are not actuated by said optical signal, to thereby electronically align the optical fiber to the photo-detector device for detecting which of the photo-sensors receives the optical signal, and deriving a received signal from any output of any of said photo-sensors that detects the optical signal, and discounting any signal from photo-sensors that do not receive the optical signal, for automatically aligning the optical fiber to at least one of the photo-sensors.

2. (Currently Amended) An optical detector as claimed in claim 1, wherein the controller comprises:

DC extraction circuitry for extracting a DC component from the photo-sensor signal output from each photo-sensor in the array;

AC extraction circuitry for extracting an AC component from the photo-sensor signal output from each photo-sensor in the array; and [[,]]

multiplier circuitry coupled to the DC extraction circuitry and to the AC extraction circuitry for generating a separate multiplier output based on the AC component and the DC component of the photo-sensor signal output from of each photo-sensor in the array.

3. (Currently Amended) An optical detector as claimed in claim 2, wherein each multiplier output is based on the product of the AC component and the DC component of the photo-sensor signal output from of the corresponding photo-sensor.

4. (Currently Amended) An optical detector as claimed in claim 2, wherein the controller comprises summation circuitry coupled to the multiplier circuitry for combining the multiplier outputs to generate the received optical signal as the detection signal.

5. (Currently Amended) An optical detector as claimed in claim 4, wherein the DC extraction circuitry comprises a plurality of DC extraction circuits each corresponding to a different one of the photo-sensors and wherein the AC extraction circuitry comprises a plurality of AC extraction circuits each corresponding to a different one of the photo-sensors.

6. (Currently Amended) An optical detector as claimed in claim 5, wherein each DC extraction circuit comprises comprising a DC current sensor coupled to the corresponding photo-sensor.

7. (Original) An optical detector as claimed in claim 5, wherein each AC extraction circuit comprises a transimpedance amplifier coupled to the corresponding photo-sensor.

8. (Currently Amended) An optical detector as claimed in claim 2, wherein the multiplier circuitry comprises comprising a plurality of multiplier circuits each corresponding to a different one of the photo-sensors.

9. (Currently Amended) An optical detector as claimed in claim 2, wherein the DC extraction circuitry comprises circuitry for extracting the DC component based on the AC signal strength of the photo-sensor signal output from of each photo-sensor in the array.

10. (Original) An optical detector as claimed in claim 2, wherein the multiplier circuitry comprises a switch.

11. (Original) An optical detector as claimed in claim 10, wherein the switch has a hysteresis.

12. (Previously Presented) An optical detector as claimed in claim 2, wherein each photo-sensor in the array comprises a photo-diode, the photo-diode having an anode and a cathode.

13. (Original) An optical detector as claimed in claim 2, wherein the array of photo-sensors comprises a two dimensional array of photo-sensors.

14. (Currently Amended) An optical communication system, comprising: having ~~at least one optical fibre and an optical detector facing an end of the optical fiber, wherein said optical detector comprising:~~

~~an array of photo-sensors for location in the path of the optical signal; and a controller for detecting which of the photo-sensors receives the optical signal, and deriving a received signal from any output of any of said photo-sensors that detects the optical signal~~

an optical fiber for transmitting an optical signal;

an optical detector disposed to face an end of the optical fiber, wherein the optical detector electronically aligns to the optical fiber, the optical detector comprising:

a photo-detector device comprising an array of photo-sensors, which receives an optical signal output from the end of the optical fiber; and

a controller operatively connected to the photo-detector device, to generate a detection signal by processing photo-sensor signals output from one or more photo-sensors in the array that are actuated by said optical signal, while discounting photo-sensors in the array that are not actuated by said optical signal, to thereby electronically align the optical fiber to the photo-detector device,

wherein the controller comprises DC extraction circuitry for extracting a DC component from the output of each photo-sensor in the array, AC extraction circuitry for extracting an AC component from the output of each photo-sensor in the array, and

multiplier circuitry coupled to both the DC and AC extraction circuitry for generating a separate multiplier output based on the AC component and the DC component of the output of each photo-sensor in the array.

15. (Currently Amended) A method for processing receiving an optical signal ~~transmitting via an optical fiber cable~~, comprising the steps of:

locating a photo-detector device having an array of photo-sensors in the path of an optical signal output from an end of an optical fiber, ~~where the optical signal is transmitted via an optical fiber cable; and~~

electronically aligning the photo-detector device to the end of the optical fiber, wherein electronically aligning comprises:

processing photo-sensor signals output from one or more photo-sensors in the array that are actuated by the optical signal;

generating a detection signal by processing said photo-sensor signals output; and
discounting photo-sensors in the array that are not actuated by said optical signal
detecting which of the photo-sensors receives the optical signal;

deriving a received signal from any output of any of said photo-sensors that detects the optical signal; and,

~~— discounting any signal from photo-sensors that do not receive the optical signal~~,
~~for automatically aligning the optical fiber to at least one of the photo-sensors~~.

16. (Currently Amended) A method as claimed in claim 15, wherein generating
comprises the step of detecting further comprising the steps of:

extracting a DC component from the output of each photo-sensor in the array;

extracting an AC component from the output of each photo-sensor in the array;

and[[,]]

generating a separate multiplier output based on the AC component and the DC
component of the output of each photo-sensor in the array.

17. (Currently Amended) A method as claimed in claim 16, further comprising
~~the step of~~ basing each multiplier output on the product of the AC component and the DC
component of the output of the corresponding photo-sensor.

18. (Currently Amended) A method as claimed in claim 16, further comprising
~~the step of~~ combining the multiplier outputs to generate the detection received signal.

19. (Previously Presented) An optical detector as claimed in claim 12, wherein
the AC extraction circuitry is connected to the anode of the photo-diode.

20. (Previously Presented) An optical detector as claimed in claim 12, wherein
the AC extraction circuitry is connected to the cathode of the photo-diode.

21. (Previously Presented) An optical detector as claimed in claim 12, wherein
the DC extraction circuitry is connected to the anode of the photo-diode.

22. (Previously Presented) An optical detector as claimed in claim 12, wherein
the DC extraction circuitry is connected to the cathode of the photo-diode.